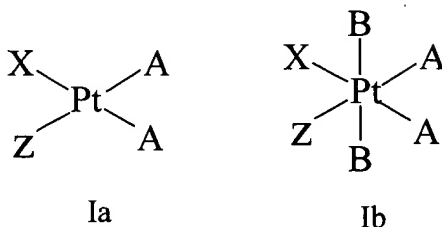


Claims

We claim:

1. A ~~cis~~-platinum complex of the formula Ia or Ib



or a pharmaceutically acceptable salt thereof

wherein:

each A is independently an anion;

each B is independently halo, hydroxy, carboxylate, carbamate or a carbonate

ester,

Z is a substituted 5- or 6-membered, heterocyclic moiety wherein at least one substituent sterically hinders access of the Pt atom to a DNA strand of a tumor cell, and wherein Z is other than pyridine; and

X is NH₃ or mono- or dialkyl substituted NH₃.

2. The complex of claim 1 wherein each A is independently halo, hydroxy, carboxylate, carbamate, or carbonate ester, or wherein both A together form a bi-dentate carboxylate or sulfate.

3. The complex of claim 1 wherein both A are halo.

4. The complex of claim 3 wherein both A are chloro.

5. The complex of claim 1 wherein both B are hydroxy or carboxylate.

6. The complex of claim 1 wherein X is NH₃.

7. The complex of claim 4 wherein X is NH_3 .
8. The complex of claim 1 which is of formula Ia wherein Z is a 5-membered heterocyclic amine or is pyrazine.
9. The complex of claim 7 which is of formula Ia wherein Z is a 5-membered heterocyclic amine or is pyrazine.
10. The complex of claim 1 wherein Z is a 5-membered monocyclic amine with one or more additional heteroatoms.
11. The complex of claim 7 wherein Z is a 5-membered monocyclic amine with one or more additional heteroatoms.
12. The complex of claim 10 wherein Z is a imidazole, pyrazole, thiazole, oxazole, or isoxazole.
13. The complex of claim 11 wherein Z is a imidazole, pyrazole, thiazole, oxazole, or isoxazole.
14. The complex of claim 12 wherein Z is 1,3,5-trimethylpyrazole.
15. The complex of claim 1 wherein said at least one substituent is coupled to the heterocycle at a position other than the position adjacent to the coordinating atom in said heterocycle.
16. The complex of claim 1 wherein the solubility of the compound in aqueous solution is greater than or equal to 1 mg/ml.

17. A complex selected from the group consisting of
(SP-4-3)-amminedichloro(1-methylimidazole)platinum(II);
(SP-4-3)-amminedichloro(2-methylimidazole)platinum(II);
(SP-4-3)-amminedichloro(1,2-dimethylimidazole)platinum(II);
5 (SP-4-3)-amminedichloro(2,5-dimethylimidazole)platinum(II);
(SP-4-3)-amminedichloro(3,5-dimethylpyrazole)platinum(II);
(SP-4-3)-amminedichloro(1,3,5-trimethylpyrazole)platinum(II);
(SP-4-3)-amminedichloro(2,3-dimethylpyrazine)platinum(II);
(SP-4-3)-amminedichloro(2,5-dimethylpyrazine)platinum(II);
10 (SP-4-3)-amminedichloro(2,4,5-trimethyloxazole)platinum(II);
(SP-4-3)-amminedichloro(3,5-dimethylisoxazole)platinum(II);
(OC-6-43)-amminedichlorodihydroxo(1-methylimidazole)platinum(IV);
(OC-6-43)-amminedichlorodihydroxo(1,2-dimethylimidazole)platinum(IV);
(OC-6-43)-amminedichlorodihydroxo(2,5-dimethylimidazole)platinum(IV);
15 (OC-6-43)-amminedichlorodihydroxo(3,5-dimethylpyrazole)platinum(IV);
(OC-6-43)-amminedichlorodiacetato(2,3-dimethylpyrazine)platinum(IV); and
(OC-6-43)-amminedichlorodihydroxo(2,3-dimethylpyrazine)platinum(IV).

18. A pharmaceutical composition comprising as active ingredient the
complex of claim 1, in admixture with a pharmaceutically acceptable diluent or carrier
20 and optionally one or more other therapeutic agents.

19. The composition of claim 18, in unit dosage form.

20. The composition of claim 18 for oral administration.

21. A method of treating cancer comprising administering to a subject in need
thereof an effective cancer-treating amount of the complex of claim 1 or a pharmaceutical
25 composition thereof.